

POTASSIUM *Wine Application*
UV-Method

POT F30 (30-Tests)
POT F90 (90-Tests)

INTENDED USE

For the quantitative determination of Potassium. This wine application is suitable for use Manual use.

	POT F30	POT F90
Buffer R1	20mL	60mL
Enzyme/Substrate R1b	20mL	60mL
Diluent R2	9mL	27mL
Enzyme R2b	9mL	27mL
150 mg/L Potassium Standard	2mL	2mL

STABILITY AND PREPARATION OF REAGENTS

R1 Buffer/Enzyme/Substrate

Dissolve one vial 'Enzyme/Substrate R1b' in a portion of Buffer R1; then transfer the entire contents to Buffer R1, rinsing Enzyme/Substrate R1b vial several times. Note preparation date on label; stable for 7 days at +2 to +8°C.

- **Prepare R1-Working Reagent:** Dilute R1 **10%**, with D.I. Water (e.g. 9mL R1 + 1mL D.I.); stable 7 days at +2 to +8°C.

R2 Enzyme/Diluent

Dissolve one vial 'Enzyme R2b' in a portion of Diluent R2; then transfer the entire contents to Diluent R2, rinsing Enzyme R2b vial several times. Note preparation date on label; stable for 2 weeks at +2 to +8°C.

PROCEDURE

Wavelength: 340/620 nm Temperature: 25 to 37C
Measurement against reagent blank

1. **Dilute Samples ten-fold** (e.g. 10uL + 90uL D.I. Water) Use Standard undiluted.

2. Pipet into Cuvettes:	Blank	Standard	Sample
D.I. Water	20uL	--	--
Standard	--	20uL	--
10-fold Diluted Sample	--	--	20uL

3. **Pipet R1-Working Reagent** **700uL 700uL 700uL**
Mix and incubate 2 min.

4. **Pipet R2 (Enzyme/Diluent)** **300uL 300uL 300uL**
Mix and incubate 2 min.

5. Zero the spectrophotometer with DI Water.
6. Measure **Initial ABS** of each cuvette, reading at a steady pace (to assure accurate timing.)
7. Incubate for 20 mins and Read **Final ABS** at that steady pace to assure accurate timing. **Note:** *This is a 'rate' reaction (reaction does not reach endpoint in 20-minutes) so equal timing for all tubes is important.*

CALCULATIONS

This assay should be calibrated daily with the standard provided.

1. Calculate **delta A** = A_{INITIAL} - A_{FINAL} for each cuvette.
2. Samples with delta A values less than 0.05 should be reassayed with a larger sample volume.
3. Subtract the delta A of the Reagent Blank (A_{INITIAL} - A_{FINAL}) from the delta A of each sample and standard.
Net A_{SAMPLE} = delta A_{SAMPLE} - delta A_{BLANK}
4. Calculate Potassium concentration in samples using the Standard provided:

$$\text{Potassium, mg/L} = \text{Conc. Standard} \times \frac{\text{Net A}_{\text{SAMPLE}}}{\text{Net A}_{\text{STANDARD}}} \times \text{D.F}$$

$$\text{Potassium, mg/L} = 150 \times \frac{\text{Net A}_{\text{SAMPLE}}}{\text{Net A}_{\text{STANDARD}}} \times 10$$

Results may also be calculated from the best-fit standard curve (e.g. 5-Point Standards available from Unitech.)

QUALITY CONTROL

A stable check wine should be assayed daily. Values obtained should fall within a range you have predetermined for this check wine. If these values fall outside the range and repetition excludes error, the following steps should be taken:

1. Check instrument settings and light source.
2. Check cleanliness of all equipment in use.
3. Check water, contaminants ie. bacterial growth may contribute to inaccurate results.
4. Check expiry date of kit and contents.

SPECIFICITY / INTERFERENCE

Ammonia in wine samples was tested at concentrations up to 300 mg/L and found not to interfere.

LINEARITY This method is linear for potassium concentrations in undiluted samples between is 300 - 3000mg/L.

Reagents Manufactured by:

Radox Laboratories Limited, UK

Kits, Standards & Application by . . .

and Reagents Distributed by:

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